

Title (en)

SYSTEMS AND METHODS FOR REMOVAL OF CONTAMINANTS FROM A LIQUID

Title (de)

VORRICHTUNG UND VERFAHREN ZUR BESEITIGUNG VON VERUNREINIGUNGEN AUS EINER FLÜSSIGKEIT

Title (fr)

SYSTÈMES ET PROCÉDÉS D'ÉLIMINATION DE CONTAMINANTS D'UN LIQUIDE

Publication

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Application

EP 20834361 A 20200703

Priority

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Abstract (en)

[origin: WO2021003474A1] A liquid treatment system and methods for removing contaminants from a liquid flow is disclosed. The treatment system having a treatment zone, a nanobubble diffuser system and a skimmer cassette assembly configured to remove the nanobubble and contaminant agglomeration from the liquid flow. The nanobubble diffuser system configured to diffuse negatively charged nanobubbles into the liquid flow whereby the nanobubbles adhere to positively charged contaminants and the nanobubble and contaminant agglomeration is urged to float towards a surface of the liquid flow in the treatment zone and be removed by the skimmer cassette assembly. In some embodiments, larger bubble diffuse systems are provided to increase the rise rate of contaminants. In some embodiments, the treatment system is a floating vessel. In some embodiments, the treatment system is configured to remove microplastics down to a size of about 1 mm and less.

IPC 8 full level

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Citation (search report)

- [I] KR 100992430 B1 20101108 - KOLON WATERTECH CO LTD [KR]
- [I] WO 2012047680 A2 20120412 - WORLD WATER WORKS INC [US], et al
- [I] WO 2019073107 A1 20190418 - SUOMEN MERITUOTE OY [FI]
- [Y] US 5242600 A 19930907 - MEYLOR DONALD M [US], et al
- [Y] US 2017072408 A1 20170316 - SUZUKI TOSHIKATSU [JP]
- [Y] US 5540844 A 19960730 - MEYLOR DONALD M [US], et al
- [A] KR 20030042645 A 20030602 - CHO HANG MOON [KR], et al
- See also references of WO 2021003474A1

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